M SCOPE

INTEGRATED MAGNIFIERS AND LED ILLUMINATION

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Features, Specifications, Set-up & Troubleshooting

Plate Magnifiers

- 3 interchangeable plate magnifiers are provided. They are high quality with scratch resistant coating.
  III = 3 dioptres, V = 5 dioptres, VII = 7 dioptres
- The 3 or 5 dioptre plate magnifiers provide ideal magnification for many applications at a user friendly working distance.
- The 7 dioptre plate magnifier is often used for eye procedures, but the working distance is close.

LED Illumination

- Light emitting diodes (LED) are a solid state device with an average life of >35,000 hours.
- They rarely need replacing, but if this is necessary it must be done by VOROTEK.
- The illumination colour is daylight and does not vary with the age of the LED or the level of charge of the battery pack.
- Illumination uniformity and quality is much better than with filament lamps.
- Brightness now compares with operating room headlights.

Dimmable Illumination

- The dimmer function provides 7 evenly spaced levels of illumination. The dimmer switch is located on the leash:
  – **Click** once **on**, **click** once **off**
  – **Press and hold** for dimming to select level of illumination
- Once preferred level of illumination is selected a **click** will turn the illumination on/off without changing set level.

Battery Pack and Charger / Direct Mains Power Supply

Specifications and features

- Batteries are Lithium Ion: 11.1 Volts, 2900mAh. This provides 10 hours of “on time” at maximum level of illumination.
- Memory effect for these batteries is negligible.
- The Battery Pack features short circuit protection and charging control circuitry.
- **Use only the supplied Charger**, otherwise warranty will be void.
- For operations lasting several hours, the Direct Mains Power Supply is often a better option (see Direct Mains Power Supply).
- For numerous short procedures the Battery Pack is very convenient.
- It is designed for use on left side of belt or in shirt pocket of scrubs.
- If it is worn in the breast pocket the switch can be used by the operator through the operating gown.
- An alternative is to clip the Battery Pack to the back of the gown.

Switch on Battery Pack

- Switch on Battery Pack has three positions which are labelled **ON**, **OFF** and **CHARGE**.

Indication that Battery Pack must be charged

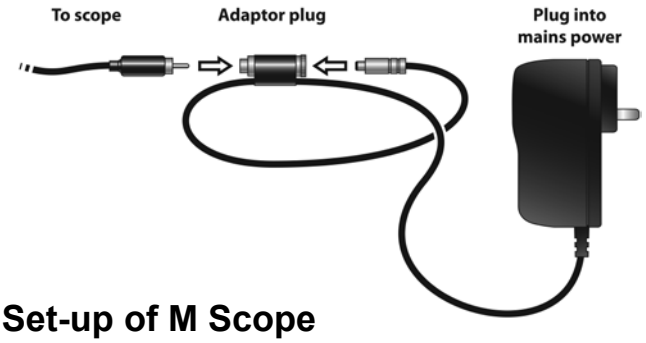
- LED illumination cuts out and resets repeatedly.
  NOTE: LED illumination does not fade, but the protective circuit breaker keeps switching off (and resetting).
  NOTE: Charging is best done overnight, frequently and before the Battery Pack runs flat.

Battery Pack charging (Battery Pack indicator)

- Set switch on the Battery Pack to charge position.
- **RED CONSTANT** – Charging (takes up to 8 hours).
- **GREEN** – 90% plus charged but still trickle charging.
  When charging reaches 100% trickling stops and indicator reverts to red flashing.
- **RED FLASHING** – Fully charged.
  It will also flash red if incorrectly connected i.e. Battery Pack switch not in the charge position or charger not connected to mains.

Direct Mains Power Supply

- To connect the L Scope to the Direct Mains Power Supply, the adaptor plug must be used. The adaptor plug is fixed to the Charger / Direct Mains Power Supply lead - see diagram below.
  NOTE: Battery Pack cannot be connected.



Set-up of M Scope

- The magnifier plate easily rotates upwards out of use.

Changing magnifier plates:

- The plain surface of the magnifier should face the user.
- To remove the plate magnifiers release the curved spring wires from their slots on both side of the plate magnifiers.
- Ease the surgical grade SS rod mounting arms out of their holes in the top edges of both side the plate magnifiers.
- To attached a new plate magnifier reverse the first 2 steps taking care not to alter the curve in the spring wire.

– *SpecFrame Model*

Height adjustment

- The height of the illumination spot is adjusted by moving the system up or down on the SpecFrame bracket.
- Loosen the screw that connects the optical / illumination system to the SpecFrame 1 turn and adjust.
- Do not leave screw loose, always re-tighten.

Toggle on wiring leash

This is often worth using:

– To prevent sliding down the nose
– For all lengthy procedures, e.g. operating
– To take pressure off the nose
– When head is tilted down

– *HeadBand Model*

- The HeadBand version requires more care to keep the plate magnifiers and illumination in the optimal position.
- The big advantage of the HeadBand version is that it is suited to shared use. It can be worn over the top of the user's spectacles.
- The HeadBand will fit almost any head anatomy.

Bracket adjustment

- The HeadBand mounting bracket has 2 adjustable links.
- The shorter upper link mainly controls the forward distance of the optical / illumination system.
- The 2 link system allows separate adjustment of viewing angle and forward positioning of the optical / illumination system.

Height adjustment

- The height of the optical / illumination system is adjusted by moving the HeadBand up or down on the forehead.
- If the optical / illumination system is tilted the HeadBand position may need adjustment.

Working with Corrective Lenses

Reading lenses (used for close work)

- Should be fitted to the SpecFrame of the M Scope.
- The HeadBand model should also be used over the individuals own corrective spectacles.
- When reading lenses are installed and used, the working distance becomes closer.

Bifocal lenses

- Can be fitted effectively, so long as the plate magnifiers sit in front of the reading section and below the distance section.
- To achieve this, the distance section must be smaller (i.e. upper one third only) and the reading section larger (i.e. lower two thirds).
- The nose bridge may need to be adjusted to sit the frame higher on the face. This extra frame height allows lower positioning of the plate magnifiers so that they are in front of the reading section.
- Alternative nose bridges are available from most optometrists.

Multifocal lenses

- Are best avoided because it is difficult to achieve sharp focus.

Lens fitment

- Please advise the optometrist to rotate the plate magnifiers upwards when fitting lenses.
- There is no need to unscrew the optical / illumination system or dismantle the scope in any way, other than the frame mounting screws for the lenses.

Troubleshooting

Illumination cuts off

- See section on '*Indication That Battery Pack must be charged*'

Battery Pack will not charge

- See section on '*Battery Pack and Charger*'.

SpecFrame damage

- Most problems can be dealt with by an optometrist e.g. missing screws, new nose pads and bent frames.
- For SpecFrame replacement contact VOROTEK.

For all other problems contact VOROTEK.

Warranty

- *Scopes* - 3 year for any component defect or manufacturing failure.
- *Battery Pack* - 18 months for any component defect or manufacturing failure.
- Warranty does not cover abuse, misuse or transit damage.
- Please contact **VOROTEK** to discuss problems or faults before sending for repairs.